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10/502,045	01/10/2005	Atsushi Kudo	255291US90PCT	2143
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER YOUNG, NATASHA E				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/502,045

**Applicant(s)**

KUDO ET AL.

**Examiner**

NATASHA YOUNG

**Art Unit**

1797

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4-6, 10-12, 16 and 32-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6, 10, 16, 32-41 and 44-46 is/are rejected.
- 7) ☒ Claim(s) 11, 12, 42 and 43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/31/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 4 and 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichikawa et al (US 6,984,253 B2).

Regarding claim 4 and 32-34, Ichikawa et al discloses (claim 4) a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by

drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see column 2, line 54 through column 3, line 14; column 3, lines 43-56; column 4, line 51 through column 5, line 41; column 6, lines 25-47; and column 8, lines 3-25); (claim 32) wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer; (claim 33) wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see column 4, line 65 through column 5, line 17); and (claim 34) the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 7, lines 58-67).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al (US 6,984,253 B2).

Regarding claims 5-6, Ichikawa et al does not disclose a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

However, Ichikawa et al discloses a heat capacity range for the adhesive and that it is not desirable to have the heat capacity of the adhesive to be too small or too large (see column 4, lines 51-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit

volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

Claims 10, 16, 35-41, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa et al (US 6,984,253 B2) as applied to claim 4 above, and further in view of Yamamura et al (JP 2000-102709 A).

Regarding claims 10 and 35-37, Ichikawa et al discloses a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a ceramic block comprising at least one columnar porous ceramic member having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see column 2, line 54 through column 3, line 14; column 3, lines 43-56; column 4, line 51 through column 5, line 41; column 6, lines 25-47; and column 8, lines 3-25).

Ichikawa et al does not disclose a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste

including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said coating material layer; and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

However, Ichikawa et al discloses an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see column 2, line 54 through column 3, line 14; column 3, lines 43-56; column 4, line 51 through column 5, line 41; column 6, lines 25-47; and column 8, lines 3-25); wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer; wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see column 4, line 65 through column 5, line 17); and the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 7, lines 58-67).

Yamamura et al discloses coating the peripheral part of the ceramic block by the sealant which contains an inorganic fiber, an inorganic binder, an organic binder, and an inorganic particle at least (see paragraph 15).

Ichikawa et al discloses that inorganic particles are pore forming agents and that hollow particles of inorganic or organic materials, such as balloon-like foamed resin, sirasu balloon and the like are pore forming agents (see column 4, line 65 through column 5, line 17).

Therefore, because these pore forming agents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute balloon-like foamed resin, sirasu balloon and the like for inorganic particles.

Regarding claims 16, 40-41, and 44-46, Ichikawa et al discloses (claim 4) a honeycomb filter (see Abstract) for purifying exhaust gases, comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see



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column 2, line 54 through column 3, line 14; column 3, lines 43-56; column 4, line 51 through column 5, line 41; column 6, lines 25-47; and column 8, lines 3-25); (claim 32) wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer; (claim 33) wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see column 4, line 65 through column 5, line 17); and (claim 34) the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 7, lines 58-67).

Ichikawa et al does not disclose a coating material layer formed on a circumferential face of said ceramic block and formed by drying a coating material paste including a pore forming which forms a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said coating material layer; and wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

However, Ichikawa et al discloses an adhesive layer combining said columnar porous ceramic members with one another and formed by drying an adhesive paste including a pore forming material which forms a plurality of pores adjusting a thermal capacity per unit volume of said adhesive layer becomes lower than a thermal capacity per unit volume of the porous ceramic members (see column 2, line 54 through column 3, line 14; column 3, lines 43-56; column 4, line 51 through column 5, line 41; column 6,

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lines 25-47; and column 8, lines 3-25); wherein said plurality of pores is formed by incorporating the pore forming material which forms independent pores in said adhesive layer; wherein said pore forming material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see column 4, line 65 through column 5, line 17); and the filter further comprising a catalyst supported in at least one of said columnar porous ceramic members (see column 7, lines 58-67).

Yamamura et al discloses coating the peripheral part of the ceramic block by the sealant which contains an inorganic fiber, an inorganic binder, an organic binder, and an inorganic particle at least (see paragraph 15).

Ichikawa et al discloses that inorganic particles are pore forming agents and that hollow particles of inorganic or organic materials, such as balloon-like foamed resin, sirasu balloon and that like are pore forming agents (see column 4, line 65 through column 5, line 17).

Therefore, because these pore forming agents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute balloon-like foamed resin, sirasu balloon and that like for inorganic particles.

Regarding claims 38-39, Ichikawa et al does not disclose a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the

thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

However, Ichikawa et al discloses a heat capacity range for the adhesive and that it is not desirable to have the heat capacity of the adhesive to be too small or too large (see column 4, lines 51-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a honeycomb filter wherein the thermal capacity per unit volume of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

#### ***Allowable Subject Matter***

Claims 11-12 and 42-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art references, Ichikawa et al and Yamamura et al, do not disclose or suggest a filter wherein the thermal capacity per unit volume of the coating layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members and wherein the thermal capacity per unit volume of the coating layer

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is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

### ***Response to Arguments***

Applicant's arguments with respect to claims 4-6, 10-12, 16, and 32-46 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is 571-270-3163. The examiner can normally be reached on Mon-Thurs 7:30 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. Y./

Examiner, Art Unit 1797

/Walter D. Griffin/

Supervisory Patent Examiner, Art Unit 1797